MDF decoded: grades, myths, balancing and why quotes differ

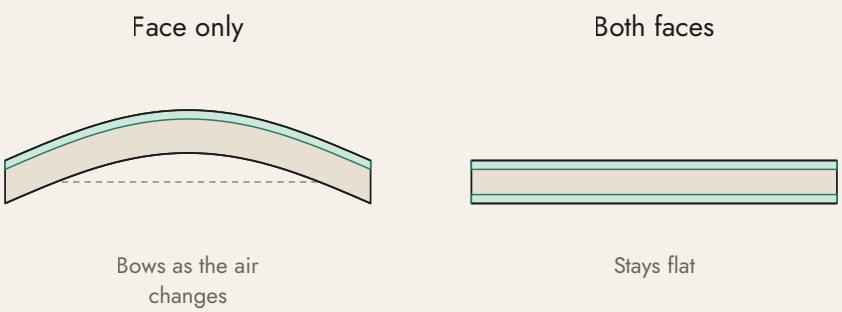
MDF grades compared, the myths tested against data sheets, why panels need balancing and sealing, and why two MDF quotes differ.

Compliance guidance. Fire, formaldehyde and dust figures come from the documents named, mostly manufacturers' data sheets. BS EN 622-5, BS EN 13501-1 and BS EN 13986 were not read. Take figures from the Declaration of Performance of the board supplied, and check the class your project needs with your fire engineer or building control. Guidance, not legal or fire safety advice.

AT A GLANCE

Grade	Used for	What the sources we read say	Write
Standard MDF	Dry, heated interiors: painted and veneered panels, mouldings, trim	Dry-process fibreboard to BS EN 622-5 (listing read). Excellent for flatness, edge and surface uniformity, good for stability and screw holding in the AWS core table (US).	BS EN 622-5, type [ ], thickness [ ] mm sanded
MR (MDF.H)	Humid rooms: kitchens, bathrooms, skirtings	One data sheet: designed for humid conditions to type MDF.H (Option 1). Not for external use. Seal, prime and paint every surface. Limit on 24 h thickness swelling 5 to 25% by thickness.	MR board to type MDF.H, sealed on all faces and edges
FR	Where a reaction-to-fire class is needed	One supplier page: MDF.H FR board, Euroclass B-s1,d0 stated for 6 to 30 mm, and no added formaldehyde (NAF). The class is for the board as tested: take it from the DoP.	FR board, class [ ] for [ ] mm as mounted, from the DoP; formaldehyde [E1 / NAF]
Light, ultra-light	Large doors and panels where weight matters	One data sheet (2023): 600 to 640 kg/m3, bending strength 15 to 20 N/mm2, class E or D by thickness and mounting.	Light board, density [ ], screw holding and class from the data sheet
Outdoors or wet	Not a use for MDF.H	MR is moisture resistant, not waterproof, and the data sheet says not for external use. Exterior-grade boards exist; none was read.	Choose another material, or a board proved for it

From a Wood Handbook chapter, the Architectural Woodwork Standards (2009, US), three manufacturers' papers read for this sheet (named in our notes, not here) and the HSE. BS EN 622-5 itself was not read. Always take the type, class and tolerance from the data sheet and Declaration of Performance of the board supplied.



Two panels seen from the edge: a board faced on one side only, which bows as the air changes, and a balanced board. Schematic; the direction of bow depends on the change. Original drawing by Make Bespoke Studio.

SPECIFICATION WORDING

MDF BOARD

Board: MDF to BS EN 622-5 [type MDF / MDF.H], [edition], thickness [ ] mm after sanding, tolerance +/- [ ] mm, with a Declaration of Performance. Formaldehyde class [E1 / no added formaldehyde]. Board to be conditioned to the site relative humidity for [ ] days before cutting and fixing. Substitution only with the designer's written approval.

FIRE-RETARDANT BOARD

Board: MDF to BS EN 622-5 [type MDF.H FR], reaction to fire class [B-s1,d0] to BS EN 13501-1 for thickness [ ] mm, mounted [without an air gap], as stated on the Declaration of Performance. The class is to apply to the finished build-up of board and [finish system]: supplier to confirm in writing. No substitution.

BALANCED VENEERED PANEL

Panel: [MDF / plywood] [ ] mm, face veneer [species, cut, match], balancing veneer [ ] on the reverse, every face and edge finished with [system]. Cut edges, and any back against plaster or masonry, sealed and primed. Moisture-resistant board sealed, primed and painted on all surfaces before installation.

TERMS USED

MDF (medium density fibreboard)

A dry-process board of refined wood fibres and resin pressed with heat, specified in Britain to BS EN 622-5. Flat and smooth, but not waterproof.

MDF.H (MR)

The EN 622-5 type for humid interior conditions, usually sold as moisture-resistant (MR) board. Moisture resistant is not waterproof, and it is not for outdoors.

Declaration of Performance (DoP)

The maker's document stating a construction product's declared performance, such as its reaction to fire class and formaldehyde class. Ask for it, rather than relying on a board's name.

STANDARDS AND SOURCES

- BS EN 622-5:2009, Fibreboards. Specifications. Requirements for dry process boards (MDF): BSI listing read (current); the standard was not read.
- USDA Forest Products Laboratory, Wood Handbook, FPL-GTR-282 (2021): Ch. 11, 12, 13, 16, 19. Read 5 Nov 2026.
- Architectural Woodwork Standards, 1st edition (2009): Sections 4 and 5. US standard. Read 5 Nov 2026.
- HSE information sheet WIS23, Wood dust: controlling the risks (rev. 3, May 2022): Read.
- BS EN 13986 and BS EN 13501-1: Named on the data sheets read. Not read: confirm current editions and UKCA marking.

Full guide: https://makebespoke.com/trade/technical/mdf-decoded. Make Bespoke Studio coordinates manufacture through its partner workshops. Figures are guidance only and your specification governs; some may be superseded, so contact the studio to verify.